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| | | First Named Inventor | Richley, Edaward A. |
| | | Art Unit | 2876 |
| | | Examiner Name | Uyen-Chau N. Le |
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**ENCLOSURES** *(Check all that apply)*

- [X] Fee Transmittal Form
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- [ ] Amendment / Reply
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**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

| | |
|---|---|
| Firm or Individual name | Law Offices of Patrick J.S. Inouye |
| Signature | |
| Date | October 12, 2004 |

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | | |
|---|---|---|
| *In re* Application of<br>Edward A. Richley et al. | ) | Group Art Unit: 2876 |
| Serial No. 09/448,088 | ) | Examiner:<br>Uyen-Chau N. Le |
| Filed: November 23, 1999 | ) | |
| For: Laser Locating And Tracking System For Externally Activated Tags | ) | |



**APPEAL BRIEF**

Board of Patent Appeals and Interferences
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

BRIEF ON BEHALF OF EDWARD A. RICHLEY ET AL.:

Appellant appeals from the Office action mailed February 12, 2004, in which currently-pending claims 1 and 3-13 stand finally rejected. Appellant filed a Notice of Appeal on August 10, 2004 by facsimile. This appeal is being timely filed within two months of the mailing date of the Notice of Appeal, which occurred on a weekend followed by a federal holiday. 37 CFR 1.7(a).

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## 1. REAL PARTY IN INTEREST

The real party in interest is assignee Xerox Corporation, Palo Alto Research Center, a California corporation, located at, 3333 Coyote Hill Road, Palo Alto, CA 94304.

## 2. RELATED APPEALS AND INTERFERENCES

A Notice of Appeal was filed on August 10, 2004. There are no other appeals or interferences known to Appellant, Appellant's legal counsel, or assignee, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

## 3. STATUS OF CLAIMS

Claims 1 and 3-13 are rejected and pending. Claim 2 has been cancelled. Claims 1 and 3-13 are the subject of this appeal. An Appendix setting forth the Claims involved in the appeal is included as Section 8 of this Appeal Brief.

## 4. STATUS OF AMENDMENTS

Proposed amendments to Claims 1 and 3 were submitted in response to the final Office action mailed on April 12, 2004. However, the amendments were not entered, as stated in the Advisory Action mailed on May 5, 2004.

## 5. SUMMARY OF CLAIMED SUBJECT MATTER

Independent Claim 1 defines a system for identification and tracking of tags distributed in a room (page 3, lines 4-5). Claim 1 recites a laser base station for scanning laser beams through a portion of the room (page 3, lines 6-7; page 8, lines 21 through page 4, line 3; page 13, line 18 through page 14, line 7; FIGURE 1, Ref. No. 14). Claim 1 further recites a tag reactive to incident laser beams to provide a data signal (page 3, lines 7-9; page 14, line 10 through page 15, line 11; FIGURE 1, Ref. No. 54). Claim 1 further recites a tag tracking system receiving input from the laser base station, the tag tracking system storing state records of

position and informational content of the tag, wherein the tag tracking system determines angular position of the tag with respect to the laser base station (page 3, lines 9-14; page 10, line 10 through page 11, line 22; FIGURE 1, Ref. No. 20).

Independent Claim 3 defines a system for identification and tracking of tags distributed in a room (page 3, lines 4-5). Claim 3 recites at least two laser base stations (page 3, lines 6-7; page 8, lines 21 through page 4, line 3; page 13, line 18 through page 14, line 7; FIGURE 1, Ref. No. 14). Claim 3 further recites a tag reactive to incident laser beams to provide a data signal (page 3, lines 7-9; page 14, line 10 through page 15, line 11; FIGURE 1, Ref. No. 54). Claim 3 further recites a tag tracking system receiving input from the at least two laser base stations, the tag tracking system storing state records of position and informational content of the tag, wherein the tag tracking system determines an absolute position of the tag in the room based on the input from the at least two laser base stations (page 3, lines 9-14; page 10, line 10 through page 11, line 22; FIGURE 1, Ref. No. 20).

## 6. GROUNDS FOR REJECTION TO BE REVIEWED ON APPEAL

Claims 1, 3, 4, and 9 stand rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 5,963,134, to Bowers et al. ("Bowers"), in view of U.S. Patent No. 6,278,538, to Schleipen ("Schleipen").

Claims 5-8 and 10-13 stand rejected under 35 U.S.C. § 103(a) as being obvious over Bowers et al. as modified by Schleipen and further in view of U.S. Patent No. 6,005,482, to Moran et al. ("Moran").

## 7. ARGUMENT

### A. Rejection of Claims 1, 3, 4, and 9 under 35 U.S.C. § 103(a)

To establish a *prima facie* case of obviousness, the examiner has the burden of proving that (1) there is some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine the reference teachings; (2) there is a reasonable expectation of success; and (3) the combined references

teach or suggest all the claim limitations. MPEP § 2143. Additionally, finding similar elements in one or more references does not render an invention automatically unpatentable, and the invention itself may not be used as an instruction book on how to reconstruct the invention from the art references. *See Panduit Corp. v. Dennison, Mfg. Co.*, 810 F.2d 1561, 1 USPQ2d 1593 (Fed. Cir. 1987). Finally, obviousness may not be established by picking and choosing from an art reference only so much of the reference as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. *Bausch & Lomb, Inc. v. Barnes-Hind, Inc.*, 796 F.2d 443, 230 USPQ 416 (Fed. Cir. 1986).

A *prima facie* case of obviousness has not been established for the rejection of Claims 1, 3, 4, and 9 under 35 U.S.C. § 103(a) as being obvious over Bowers in view of Schleipen. The Bowers patent discloses an inventory system using articles, such as library books, with radio frequency identification (RFID) tags (Abstract). An RFID tag is attached to each article and, when properly interrogated, the RFID tag returns unique information that can be used to determine the identity of the article and the proper location of the article in the library (Col. 7, lines 32-40). The RFID tags can be interrogated by readers and interrogators, which include smart pedestals, portable RFID scanners, or patron self-checkout stations (Col. 7, line 41 through Col. 8, line 26). Each RFID tag includes a passive resonant radio frequency circuit (RF) for use in detecting when the tag is within a zone monitored by a reader or interrogator (Col. 8, lines 36-40). Each reader or interrogator communicates with RFIDs tag by inductive coupling, which couples power to the RFID tag and receives data from the RFID tag (Col. 6, lines 38-40; Col. 9, lines 17-18). The output of the reader or interrogator is connected to a database for verifying whether the detected articles have been properly checked out (Col. 7, lines 53-56).

In a further embodiment, Bower teaches a shelf scanning inventory system for a library for use in performing inventory and verifying that articles are placed on a proper shelf (Col. 15, lines 21-24). An RFID scanner is brought into the proximity of the shelf and a portion of the shelf is interrogated by the scanner

(Col. 15, lines 43-45). The scanner reads the return signals (serial numbers) from the tagged articles, which are processed and stored in the memory of a portable computer and communicated to a database (Col. 15, lines 45-49). After all article holding locations in the library are scanned, the detected serial numbers are compared with the library inventory stored in the database and a missing article report is generated (Col. 16, lines 1-10).

The Schleipen patent discloses an optical scanner that includes a radiation source for generating a radiation beam, such as a laser, and means for giving the radiation beam a two-dimensional scanning movement in first and second directions (Col. 1, lines 3-7). The scanning movement through one angular range is realized by rotating a grating and rotating reflecting element and through the other angular range by varying the wavelength of the laser (Col. 1, lines 38-41). The deflection on the grating is dependent on the wavelength of the incident light of the laser (Col. 1, lines 41-44). In one embodiment, the optical scanner includes a laser that is a pulsed diode laser and the distance between the laser and an object can be determined in any arbitrary direction by registering the instant when the reflected laser pulse echo is detected (Col. 2, lines 5-12).

First, the Bowers and Schleipen patents, taken as a whole, do not provide a suggestion, motivation, or reason to combine. Bowers and Schleipen are directed to solving different types of needs relating to objects found within or without a defined space. Bowers is directed to inventory control, while Schleipen is directed to position detection. More particularly, Bowers teaches verifying whether an article is properly checked out from a library based on a preprogrammed information packet received back from a properly interrogated RFID tag (Col. 7, lines 37-40 and 53-56; Col 8, lines 60-63). Bowers further teaches performing an inventory and verifying that articles are placed on a proper shelf (Col. 15, lines 21-24). Thus, Bowers is primarily directed to determining the inventory *status* of an article by teaching a convenient and more precise way of maintaining accurate records of available and outstanding articles. As articles enter or leave the controlled area, a library inventory database is automatically updated by scanning the RFID tags attached to each article. Similarly, detected

serial numbers are compared to the library inventory to generate a missing articles report. While Bowers teaches determining the relative location of an article, which can be inferred when an article is detected within the predefined zone, Bower still fails to teach or suggest determining an exact location of an article.

In contrast, Schleipen teaches a radiation beam emitted by a radiation source, for example, a diode laser, whose radiation is partly transmitted to a wavelength-selective feedback element via a condenser lens and beam splitter (Col. 2, lines 63-66; Col. 3, lines 22-27). In one embodiment, the surface of a three-dimensional structure is scanned and a two-dimensional detector, for example, a lens with a CCD camera, determines the direction, with respect to the detector, of the position where the laser beam is incident on the object (Col. 4, lines 59-65). For a given direction of the incident laser beam, the position of the tangent to the object can be reconstructed and, when the incident laser beam is two-dimensionally scanned, a set of three-dimensional coordinates can be obtained, which describe the surface of the object (Col. 4, line 59 through Col. 5, line 7). The shape of the object can be obtained by means of a scan of two angles and extra information about the position of a point can be obtained by using a pulsed laser (Col. 5, lines 9-31). While Schleipen teaches determining the position of an object within a general area using a optical scanner with a two-dimensional scanning movement, Schleipen still fails to teach or suggest interacting with the object to determine a status of the object.

Thus, one of ordinary skill in the art at the time of applicant's invention would not be motivated or have a reason to combine the RFID tag inventory system teachings of Bowers with the optical scanning teachings of Schleipen. Bowers teaches determining the *status* of static objects that are either present in, or absent from, a predefined zone, whereas Schleipen teaches determining the *position* of an object relative to a detector. Nor does Bowers provide any suggestion to combine the teachings of RFID tag inventory system with optical scanning as taught by Schleipen.

In addition, Bowers and Schleipen employ incompatible approaches to solving their respective needs. Bowers teaches a passive resonant RF circuit

having a coil antenna and capacitor that derives power for the RFID tag when a signal at a predetermined resonant frequency is received (Col. 8, lines 40-44). An interrogator or reader couples power to the RFID tag through the passive resonant RF circuit and receives back a data signal that can be used to determine the identity of the article and the proper location of the article (Col. 6, lines 38-40; Col. 7, lines 37-40).

In contrast, Schleipen teaches scanning the surface of a three-dimensional object by means of a scanning laser beam and determining the direction, with respect to the detector, of the position where the laser beam is incident on the object (Col. 4, lines 59-65). Three-dimensional coordinates describing the surface of the object, shape of the object, or position of particular points can be determined (Col. 5, lines 2-31).

Fundamentally, Bowers teaches an RF-based inventory system. Bowers is primarily directed to determining the status of the articles inventoried and the exact location of each article is not relevant. As a result, Bowers teaches using RF, which is omnidirectional and can be used to both provide power to *and* receive data from RFID tags. In contrast, Schleipen is primarily directed to optically scanning objects in a three-dimensional space. As a result, Schleipen teaches using a radiation beam, such as a laser beam, which is highly directional and can be used to determine a direction of a position of a laser beam incident to the object being scanned. Thus, one of ordinary skill in the art at the time of applicant's invention would not be motivated or have a reason to combine the RF-powered RFID tag teachings of Bowers, which are omnidirectional and provide both power and data, with the radiation beam optical scanning teachings of Schleipen, which are highly directional and provide position information. Nor does Bowers provide any suggestion to combine the teachings of RF-powered RFID tags with the passive optical scanning as taught by Schleipen.

Second, even if combined, the Bowers and Schleipen patents do not provide a reasonable expectation of success. Combining the RF-powered RFID tags taught by Bowers with the optical scanning taught by Schleipen would result in an inventory system using sensor-triggered tags on tracked objects coupled

with a radiation source that passively scans, but does not trigger, the tags on the objects in three-dimensional space. Replacing the omnidirectional RF signal taught by Bowers with the highly directional laser beam taught by Schleipen would provide an inoperative result. Without an RF signal, no data signal would be provided by each tag and no input would be received by the tag tracking system, per Claims 1 and 3. Furthermore, such a combination would still be limited to only providing the shape, dimension and position of each object and would fail to store state records of position and informational content of the tag, per Claims 1 and 3.

Lastly, even when combined by picking and choosing selected parts, the Bowers and Schleipen patents do not teach or suggest all claim limitations when considered in light of the disclosure of each respective patent. Bowers teaches RFID tags returning unique information for determining an identity of an article in response to passive resonant RF signals (Col. 7, lines 37-40). Schleipen teaches a pulsed laser beam for use in obtaining depth information from a reflected laser pulse echo and passively scanning and recording three-dimensional objects by determining their shapes, dimensions and positions (Col. 2, lines 8-12; Col. 4, line 52 through Col. 5, line 31). Bowers fails to teach or suggest the use of a laser beam. Rather, Bowers teaches away from using a laser beam by teaching the use of an omnidirectional RF signal, which is used as both a power and data-triggering source. On the other hand, Schleipen fails to teach or suggest the use of an interactive tag reactive to incident laser beams and teaches away from receiving informational content from tags. Thus, when combined, Bowers and Schleipen fail to teach or suggest a tag reactive to incident laser beams to provide a data signal, per Claims 1 and 3.

Thus, a *prima facie* case of obviousness has not been shown with respect to Claims 1 and 3. Claim 4 is dependent on Claim 1 and is patentable for the above-stated reasons, and as further distinguished by the limitations recited therein. Claim 9 dependent on Claim 3 and is patentable for the above-stated reasons, and as further distinguished by the limitations recited therein. As a *prima facie* case of obviousness has not been shown, withdrawal of the rejection

of Claims 1, 3, 4, and 9 for obviousness under 35 U.S.C. § 103(a) is requested.

**B. Rejection of Claims 5-8 and 10-13 under 35 U.S.C. § 103(a)**

A *prima facie* case of obviousness has not been established for the rejection of Claims 5-8 and 10-13 under 35 U.S.C. § 103(a) as being obvious over Bowers in view of Schleipen and further in view of Moran. As argued above with respect to the rejection of Claims 1, 3, 4, and 9 for obviousness over Bowers in view of Schleipen, a *prima facie* case of obviousness has not been shown. Claims 5-8 are dependent on Claim 1 and are patentable for the above-stated reasons, and as further distinguished by the limitations recited therein. Claims 10-13 are dependent on Claim 3 and are patentable for the above-stated reasons, and as further distinguished by the limitations recited therein.

In view of the foregoing arguments, Applicant respectfully submits that the rejections under 35 U.S.C. § 103(a) cannot be sustained and should be withdrawn. Appellant's undersigned attorney can be reached at (206) 381-3900. The Appeal Brief fee is included with the Appeal Brief.

Dated: October 12, 2004

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## 8. CLAIMS APPENDIX

1. (previously presented): A system for identification and tracking of tags distributed in a room, the system comprising,

a laser base station for scanning laser beams through a portion of the room,

a tag reactive to incident laser beams to provide a data signal, and

a tag tracking system receiving input from the laser base station, the tag tracking system storing state records of position and informational content of the tag,

wherein the tag tracking system determines angular position of the tag with respect to the laser base station.

2. (cancelled).

3. (previously presented): A system for identification and tracking of tags distributed in a room, the system comprising,

at least two laser base stations,

a tag reactive to incident laser beams to provide a data signal, and

a tag tracking system receiving input from the at least two laser base stations, the tag tracking system storing state records of position and informational content of the tag,

wherein the tag tracking system determines an absolute position of the tag in the room based on the input from the at least two laser base stations.

4. (original): The system of claim 1, wherein the tag is passive.

5. (original): The system of claim 1, wherein the tag is active, having an internal power supply to power a data broadcast element.

6. (original): The system of claim 1, wherein the tag is active, having an internal power supply to power an optical data output element.

7. (original): The system of claim 1, wherein the tag is active, having an internal power supply to power a radio data output element.

8. (original): The system of claim 1, wherein the tag is active, having an internal power supply to power an acoustic data output element.

9. (previously presented): The system of claim 3, wherein the tag is passive.

10. (previously presented): The system of claim 3, wherein the tag is active, having an internal power supply to power a data broadcast element.

11. (previously presented): The system of claim 3, wherein the tag is active, having an internal power supply to power an optical data output element.

12. (previously presented): The system of claim 3, wherein the tag is active, having an internal power supply to power a radio data output element.

13. (previously presented): The system of claim 3, wherein the tag is active, having an internal power supply to power an acoustic data output element

## 9. EVIDENCE APPENDIX

None.

## 10. RELATED PROCEEDINGS APPENDIX

None.